



Charlotte Mason's House of Education,
Scale How, Ambleside, UK, 2009

The **Charlotte Mason Digital Collection** is a not-for-profit database created in 2009-2011 to assist scholars, researchers, educators and students to discover, use, and build upon the Charlotte Mason Collection of archives, journals and books housed in the Armitt Library & Museum (UK). To learn more about this database or to search the digital collection, go to [The Charlotte Mason Digital Collection](#).

Your use of images from the **Charlotte Mason Digital Collection** is subject to a [License](#). To publish images for commercial purposes, a license fee must be submitted and permission received prior to publication. To publish or present images for non-profit purposes, the owner, Redeemer University College, must be notified at cmdc@redeemer.ca and submission of a copy of the context in which it was used also must be submitted to the owner at cmdc@redeemer.ca. Credit lines, as specified in the [License](#), must accompany both the commercial and non-profit use of each image.

Unless you have obtained prior permission, you may not download an entire issue of a journal nor may you make multiple copies of any of the digital images. Higher resolution images are available. [Low resolution (150 dpi), single copy printing is permitted: High resolution images for publication can be purchased. Please contact Redeemer University College in writing as specified in the [License](#) to request high resolution images.

While the document originals are housed in the Armitt Library & Museum, Redeemer University College owns the rights to the Digital Images (in jpg/pdf format) of the original archival documents and artifacts. The original Digital Images and database metadata are owned and maintained by Redeemer University College. Multiple images are bound together in PDF Packages. Click [here](#) to download the latest version of Adobe Reader for better viewing. In the PDF, click an image thumbnail to view it.

This project was made possible through collaboration among the [Armitt Library & Museum](#) (Ambleside, UK), [Redeemer University College](#) (Ancaster, Canada) and the [University of Cumbria](#) (UK) and with the financial assistance of the [Social Sciences and Humanities Research Council of Canada](#).

Need help? If you do **not** see a side-bar with image thumbnails:

Some of the PDF packages are large and will take some time to download. A very large PDF package may open more successfully if you download it first to your desktop. (From inside the database record, right-click on the link to the PDF package and save the link to your desktop.) Once it's on your desktop, you can open it up with a recent version of [Adobe Reader](#).

If you have a Macintosh with Safari, the default program to open PDFs is Preview, which does not open the PDF packets. Mac users need to download [Adobe Reader](#). If this cover page appears without a list of PDF files (either at the side or bottom of the screen), look for a paper clip or a menu option to view attachments. If you click that, you should see a list of the pages in the PDF package.

Viewing files with Linux: This works with the default PDF viewer that comes pre-installed with Ubuntu. While viewing this cover page in the PDF viewer, click "View" on the top toolbar, and check the box that says "Side Panel". That will bring up the side panel. The side panel will show only this cover page. Click the 'arrow' at the top of the side panel, and it will give you the option to view "attachments." If you click that, you should see a list of PDF files, which are the pages in the PDF package.

Yes, all is well—not for his friend alone, but for all mankind. The tide may set at times among nations to evil, but it turns with the stronger flow for righteousness.

 "I see in part
That all, as in some piece of art,
Is toil coöperant to an end." (128)

"The more I hope and labour, the nearer, the closer the communion with the blessed, the more assured I am of its consummation."

The poem concludes as it opened, with prayer for a purified will. The will to live thus stands for what is highest and most enduring in us. It flows through our deeds and makes them pure.

"That we may lift from out of dust
A voice as unto him that hears,
A cry above the conquer'd years
To one that with us works, and trust,

"With faith that comes of self-control,
The truths that never can be proved
Until we close with all we loved,
And all we flow from, soul in soul." (131)

Thus love has not only conquered doubt, and fear, and death, but inspires life.

Love leads to the eternal truth—"Beloved now are we the sons of God, and it does not yet appear what we shall be."

"Thus the soul, after grappling with anguish, darkness, emerges with the inspiration of a strong and steadfast faith in the love of God for man, and in the oneness of man with God, and of man with man in Him."

"That God, which ever lives and loves,
One God, one law, one element,
And one far-off divine event,
To which the whole creation moves."

NATURE'S FORETHOUGHT.

BY E. M. E. WILKINSON.

AS a preliminary remark, I must explain that the term "Nature" is here used to designate that wonderful Power which is behind all things—the "very pulse of the machine," which sets all in an orderly motion, and without which we can imagine life to be nothing but chaos and darkness—or rather, we cannot imagine life at all, for to us it means law and order. Wonderful manifestations of this Power are daily before our eyes, and for this very reason, alas!—because they are so common and universal—we fail to see their beauty and to wonder at them.

Looking at the plant-world alone, I will try to give some few instances (out of the countless number) of the manifestation of this Power in a wise forethought, which we find as marvellously displayed in Nature's care for the humblest "weed," as in the glories of the heavens.

If we consider for a moment what "life" means to a plant—how real to it, as to us human beings, is the struggle for existence, with enemies and dangers on every side—we shall see how great is the need for care and forethought in securing for the plant itself the best *conditions* of life possible, and also for its children after it.

It is in connection with the latter, the propagation of its species, that I particularly wish to write, for it seems to me that nowhere in the whole vegetable world does Nature display more wonderful forethought than in the various devices for the protection and distribution of seed. The question of how and from what cause the various modifications of different parts of the plant arose is a most interesting and difficult one, but it is quite beyond the scope of this paper to consider it at all, and I will therefore only try to describe some of the curious and interesting devices of plants for the protection and distribution of their seed which have come under my notice.

Taking, firstly, the *protection* of the seed from its many natural enemies, such as birds, slugs, etc., we find that Nature is in no way limited in her devices. Seeds are usually enclosed in a pericarp, and it is either this seed-vessel that we find modified to serve as a protective covering; or when, as we often find, the whole fruit is enclosed in persistent bracts or a persistent calyx, it is the latter that are modified in various ways to serve the same end.

The pericarp of the Horse Chestnut is most effectually armed with prickles, and in the Spanish Chestnut the bracts, covered thickly with spines, close round the whole fruit, and encase it in a suit of armour as effective, as a weapon of defence, as his prickles to the hedgehog. The Common Beech is another instance of the same kind, with its prickly cupules.

The fruit of many of the Medicks (*Medicago*) consists of pods in compact spiral coils, with a double row of spines, forming a prickly ball, inside which the seed is safely ripened. In the case of those fruits known as drupes, such as plum, cherry, peach, etc., the hard, woody endocarp—the “stone”—covers the seed, until it at length rots away when it has taken its precious burden safely under the ground, and leaves the embryo plant free scope for growth.

The berries of some plants contain in themselves such poisonous properties that no creature—or sometimes only a very few—may eat them and live. Such an one is the Deadly Nightshade (*Atropa Belladonna*), the most poisonous plant in Britain, and there are, of course, many others with the same effective weapon of offence and defence!

These are only a very few instances, but they will serve as an illustration of Nature's forethought and varied resources, in the care of even the lowliest of her children.

The seed safely and duly brought to perfection, there remains the all-important and difficult question of giving it a suitable start in life—in other words, of securing for it the most favourable conditions possible for growth. And here the analogy between human and plant life does not hold so good, for the plant is much more the plaything of circumstances than the human being endowed with will-power (though one does find the most remarkable instances of plants overcoming the difficulties created by changing circumstances, and adapting themselves in the most extraordinary

way to new conditions of life), and this being so, it is *a fortiori* necessary for the embryo plant to find itself placed in suitable surroundings, wherein it may grow and thrive.

It is a well-known fact that different plants require, and take, different mineral foods from the soil in which they grow. Too many plants of the same species cannot, therefore, grow well for long together in the same limited area, unless, of course, the mineral they require is artificially supplied, as in agriculture. We see an illustration of this fact in the system of the rotation of crops—a fact which, if known, was not acted upon in England, I believe, until the latter part of the eighteenth century. It is also a universally acknowledged principle, and one always carried out in the planting of forests, etc., that overcrowding is opposed to all healthy growth, for it deprives of sun and light—two of the most essential conditions thereto.

We see then that in the distribution of seed Nature has always these two important facts to keep in mind, viz., the avoidance of overcrowding, and the securing to a given plant the mineral food it may require from the soil in which it grows.

Both these ends are secured by the wide and gradual distribution of the seed at some distance, often a great one, from the parent plant, and we will now consider a few of the ways in which Nature has provided that this end shall be attained.

One of the most interesting cases of seed-distribution came under my notice quite by chance. Searching one day for a lost tennis ball in a flower-bed with my racket, I suddenly felt a whole cannonade of tiny seeds in my face, and looking down found a plantation of Hairy Bitter-cress (*Cardamine hirsuta*), a very common garden “weed.” This little plant has long pods which, when ripe, split from below upwards, and the valves curl up elastically, thereby thrusting out the seeds to an enormous distance, when one considers that the size of the plant is often not twelve inches, and the pods about one inch long. The fruits were, of course, quite ripe, and just the touch of the racket caused the bursting of the pod.

Another very similar case is that of the Broom (*Cytisus scoparius*), the black twisted pods of which remain, long after

the seeds are scattered, as conspicuous objects on the tree. In the Burdocks (*Arctium*), members of the Composite family, the whole flower-head is enclosed in an involucre covered with hooked spines. By means of the latter, the head of fruits attaches itself to the coats of passing animals, and the seeds are often carried to great distances from the parent plant. Another instance of the same kind is that of the Goose-grass (*Galium aparine*), the tiny burs of which often cover one's clothes after walking through a corn-field, and cling very persistently, as they will to any other woolly object that comes in their way. From this the plant derives its popular name of "Cleavers." Everyone must have seen the lovely feathery pappus which crowns the fruit of so many of the Compositæ, dandelion, goats-beard, groundsel and others, floating gracefully in the air with the little fruit pendent beneath. Here the wind is made use of by Nature as the agent for carrying the seed, and we can see to what diverse places the seeds from one flower-head must travel.

One of the most lovely designs for seed distribution that I have ever seen is that of the Willow-herb (*Epilobium*). The fruit is a very long and slender capsule with four valves, and the seeds, each crowned with a silky, downy tuft, are arranged one above the other inside the capsule, with the silky hairs adhering to its sides. As the capsule splits gradually from below upwards, so are the silky hairs detached from its sides, and each little seed in turn floats gracefully away, borne "upon the wings of the wind." The wind is again made use of in distributing the seeds of many of our forest trees. The seeds of sycamore, maple and ash all have "little wings to bear them" earthwards, to the "fresh fields and pastures new," where, after a time, they shall again lift themselves heavenwards, and strive towards the sun.

But living creatures and the wind are not the sole outside agents of which Nature makes use in distributing seed; the moisture of the atmosphere is also made to serve this end, and an interesting example of this is afforded by the Stocks-bill (*Erodium*). The plant is obviously so named from its long beaked fruits, the beak being formed by the styles, which persist as spirally-twisted awns, each of which has long *elastic* bristles on the inner side. The awns are at first quite straight, but become spirally-twisted when ripe, and

then spring away, often to some distance, from the parent plant. But this is not all; the awn is hygroscopic and uncurls when moistened. So by the combined action of the awn and the bristles on it the little fruit is given the power of locomotion at every change in the moisture surrounding it, and is thus able to bury itself in a short time.

When one thinks of the wonderful life-story of even the very humblest little plant, one is filled with wonder and admiration at the infinite care and forethought bestowed upon the smallest things, even as upon the greatest. Here, as in the ruling of the heavens, we find the same law and order reigning, and the infinitely small is as awful as the infinitely great.

In conclusion, let me quote a few words from an article I recently read—"It may be that a man is terrified by the contemplation of the vastness of the questions and the distances which present themselves to the astronomer, frightened by the realisation that stars are innumerable. Let such a man go to the *smallest* things on the earth on which he lives: let him realise that it is not bathos to turn from suns to caterpillars. The stag-beetle, cutting out a space which months hence is to hold the horns that are not yet grown; the privet-hawk larva, invisible in its lilac and green on the stem on which it feeds; the tiniest moth laying its eggs on the only leaves which its young will eat when they emerge from the eggs; the edible butterfly arrayed like the poisonous to keep its species alive,—can any man contemplating these small things, evidences as they are of defined order and progress in what can best, perhaps, be described as subconscious life, deny the existence of a Directing Purpose and Power in all that he is allowed to see about him?"